PEC UPDATE

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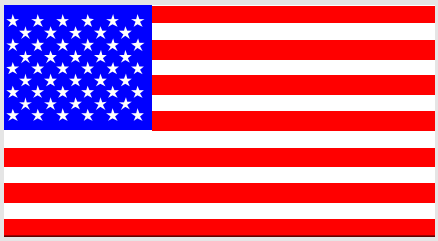
ISSUE HIGHLIGHTS

Remember Flag Day, June 14, and Independence Day, July 4



NSAID Cost Savings Through a Stepped-Care Prescribing Protocol

Clinicians are faced with deciding between at least fourteen nonsteroidal anti-inflammatory drugs (NSAIDs) when writing a prescription. The daily costs of these agents may vary over 10-fold. Additionally, with the possible exceptions of gout and ankylosing spondylitis, clinically important differences in NSAID effectiveness have not been demonstrated, and more expensive agents are not necessarily less toxic. However, many clinicians continue to prescribe more expensive NSAIDs as first-line therapy. A recent study published in *JAMA* (1996;275:926-30) describes a NSAID prescribing protocol as a means to guide initial NSAID selection and lower NSAID costs while maintaining quality patient care and clinician satisfaction.

The study evaluated the proportion of expensive NSAIDs prescribed and total NSAID costs adjusted for prescription volume at Madigan Army Medical Center (MAMC), the study site, and Walter Reed Army Medical Center (WRAMC) and its primary care clinics, the control sites. MAMC implemented a prescribing protocol requiring a trial of either ibuprofen or indomethacin before a more expensive NSAID was prescribed. One control site used a computer cost-prompt to the clinician when a NSAID was ordered, and the other control site had no intervention. Identical prices were applied to all sites. Prices ranged from 1 to 3 cents per tablet or capsule for the less expensive NSAIDs and from 13 to 97 cents per tablet or capsule for the more expensive agents (Table).

The prescribing protocol was implemented at the study site after a 3-month baseline period. All staff at the study site received educational materials and presentations about the protocol and the rationale with repeated distribution of the protocol every 6 months for continuing educational efforts. Additionally, patients were informed of the protocol through local press and letters from the hospital commander. Prescribing data were collected over an 18-month follow-up period.

Table—NSAIDs on Formulary at Study Site and Control Sites

	Study Site	Control Sites
Less expensive NSAIDs (1 to 3 cents/tablet or capusle)	Ibuprofen Indomethacin Salsalate	Ibuprofen Indomethacin Salsalate Choline magnesium salicylate
More expensive NSAIDs (13 to 97 cents/tablet or capsule)	Naproxen Piroxicam Sulindac Tolmetin Diclofenac Mefenamic acid Flurbiprofen† Meclofenamate†	Naproxen Piroxicam Sulindac Tolmetin Diclofenac Mefenamic acid* Diflunisal†

* Removed from formulary early in the second year of the study.

† Less than 5% of all NSAID prescriptions were for a more expensive agent not stocked by all study sites.

Enteric-coated aspirin was not included in the study because of the large

During the 3-month baseline period at MAMC, expensive NSAIDs accounted for 34% of all NSAID prescriptions. The last quarter of follow-up showed the use of expensive NSAIDs declined from 34% to 21% of all NSAIDs prescribed. The average monthly NSAID costs were $42,300 in the baseline period and $30,100 during the intervention period. NSAID cost per 100 outpatient visits fell from $51 at baseline to $35 during the last quarter of the study.

At the control hospital, computer prompts for NSAID costs and pharmacy education via a newsletter were implemented 9 months into the 18-month evaluation period. The use of expensive NSAIDs decreased by 8% at the this control site. In contrast, the control clinic with no educational intervention showed a decline of only 3%. NSAID costs decreased by 5% at the control hospital with the cost-prompt, and increased 2% at the control clinic with no intervention.

A survey of 158 clinicians at the study site reported very few protocol-related patient care problems. Nine percent of clinicians felt the protocol was bothersome, and only 2% felt it should be discontinued.

Based on these results, a "stepped formulary" approach requiring an initial trial of a less expensive NSAID can maintain clinician satisfaction while lowering costs. The Pharmaco-Economic Center (PEC) provided similar guidance to clinicians with the interim recommendations for NSAIDs and related agents published in PEC Update 95-08 (15 May 1995). Currently, ibuprofen 400 mg tablets and indomethacin 25 mg capsules are the only NSAIDs on the Tri-Service Formulary (TSF).

APOR First Annual International Meeting

The Association for Pharmacoeconomics and Outcomes Research (APOR), recently held its First Annual International Meeting in Philadelphia, Pennsylvania. APOR was organized less than a year ago for the purpose of promoting and advancing the science of pharmacoeconomics and providing a forum for members to share ideas, assistance, and knowledge.

In less than a year, the association has grown to over 600 members. Approximately 379 members and 22 exhibitors attended the first annual meeting. Members came from as far away as Australia and New Zealand, although the majority were from the USA and Canada. In addition, over 70 poster and podium presentations were presented at this first meeting. Many of the presentations addressed topics and studies of acute interest to policy makers, P&T committee members, and physicians and pharmacists who are trying to balance the value of pharmacotherapeutics with the cost of those therapies in the context of a declining budget. For those who could not attend, the conference proceedings will be published in an upcoming issue of *Clinical Therapeutics*.

The military was well represented with members from the PharmacoEconomic Center (PEC) attending the conference. PEC members conducted a workshop on applied pharmacoeconomics and gave an invited presentation on the public sector approach to pharmacoeconomic evaluations.

APOR has established itself as the only professional association focused solely on pharmacoeconomics and outcomes research. Its current rate of growth and significant interest by industry and managed care testify to the need for an organization of this type. The membership of APOR represents a broad cross section of the entire spectrum of pharmacoeconomic activity. Though many prominent researchers and scientists are members of APOR, the organization has maintained, from the beginning, a strong desire to promote not only the scientific theory of pharmacoeconomics, but the practical application of pharmacoeconomics as well.

APOR may represent a worthwhile association for those who either desire more exposure to the rapidly growing field of pharmacoeconomics or for those decision makers, struggling to make difficult economic and clinical decisions in our rapidly changing world, who wish to share ideas and experiences with others in similar settings.

The Second Annual International Meeting has been set for 20-23 April 1997 in Philadelphia. Although the Call for Papers will not be sent out for several more months, it is not too early to start considering any research, study, or project you may wish to present at the next meeting.

Any questions concerning APOR can be directed to either the PEC staff, or to APOR directly.

APOR
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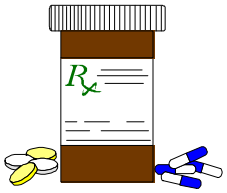
Drug Interaction with Astemizole

Astemizole (Hismanal® - Janssen Pharmaceutica) labeling has recently been revised to include a new drug interaction; the concomitant administration of astemizole with quinine is now contraindicated. Pharmacokinetic data and case reports indicate that the administration of quinine doses of 430 mg or higher may result in elevated plasma levels of astemizole and desmethylastemizole accompanied by electrocardiographic QT prolongation.

Tonic water beverages contain varying amounts of quinine. A pharmacokinetic study demonstrated that daily consumption of quinine 80 mg daily or approximately 32 ounces of tonic water did not significantly alter the pharmacokinetics of astemizole. Although tonic water beverages may elevate astemizole and desmethylastemizole plasma levels, the effect is small and is not accompanied by significant prolongation of the QT interval.

Recent Drug Recalls



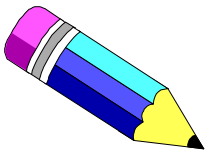
Phenytoin and Nitroglycerin
Parke Davis is recalling a single lot of Extended Phenytoin Sodium Capsule (Dilantin®) due to failure to meet dissolution specifications through the expiration date of the product. Additionally, several lots of Nitroglycerin Tablets, USP (Nitrostat®) are being recalled because these lots may not meet assay specification through the expiration date of the product. If you have any of the recalled stock of nitroglycerin or phenytoin as listed in the Table (see page 4), contact your wholesaler or Parke Davis directly at: Parke Davis, Munsonhurst Road Complex, Franklin, NJ 07416, 1-800-223-0432.

Loxapine
Lederle Laboratories division of Wyeth-Ayerst is voluntarily recalling all lots of loxapine succinate

(Loxitane®) 5 mg and 10 mg capsules and several lots of loxapine succinate 25 mg capsules due to failure to meet potency specifications through the expiration date of the product. If you have any of the recalled stock of loxapine as listed in the Table below, contact your wholesaler or Lederle Laboratories directly at: Lederle Laboratories, Quarantine Department - Bldg 110, 401 N. Middletown Road, Pearl River, NY 10965-1299, 1-800-999-9384.

Table—Recalled Drug Products

NDC	Product	Lot No.(Expiration Date)
Parke Davis Products		
0071-0570-24	Nitroglycerin 0.4 mg, 100s	03564F (NS)
0071-0570-13	Nitroglycerin 0.4 mg (4×25s)	00184F, 00284F, 111N4F (NS)
0071-0365-24	Extended Phenytoin Sodium 30 mg ,100s	27835L (3/97)
0071-0365-24	Extended Phenytoin Sodium 30 mg ,100s	27835L (3/97)
Lederle Laboratories Products		
0005-5359-23	Loxapine Succinate 5 mg, 100s	All lots (all expiration dates)
0005-5359-60	Loxapine Succinate 5 mg, unit dose 100s	All lots (all expiration dates)
0005-5360-23	Loxapine Succinate 10 mg, 100s	All lots (all expiration dates)
0005-5360-34	Loxapine Succinate 10 mg, 1000s	All lots (all expiration dates)
0005-5360-23	Loxapine Succinate 10 mg, unit dose 100s	All lots (all expiration dates)
0005-5361-34	Loxapine Succinate 25 mg, 1000s	342-351 (9/97); 374-435 (1/99)
0005-5361-23	Loxapine Succinate 25 mg, 100s	350-338 (10/97); 360-359 (11/97); 376-413 (1/99); 388-455 (9/99)



Applied Pharmacoeconomics Mini-Residency Program

The PharmacoEconomic Center (PEC) held its first Mini-Residency in Applied Pharmacoeconomics from May 6 through May 23, 1996. Five pharmacists completed the intensive 3 week course:

- CPT(P) Cheryl Filby, U.S. Army
- MAJ Dave Dunlop, U.S. Air Force
- LT Scott Lawry, U.S. Navy
- LCDR Ray Cope, Indian Health Service
- Barbara Uenaka, Department of Veterans Affairs

The program consisted of background lectures and discussions on the PEC history, general concepts in statistics, pharmacoeconomics, decision analysis, clinical and pharmacoeconomic literature evaluation, modelling methodologies, types of costs, types of data and data sources, and sensitivity analysis.

The group participated in several exercises to relate the didactic information to their practice settings. Additionally, the group was assigned a 'hands-on' project to develop and perform a disease state analysis to help apply the information from the didactics and illustrate the complexity of these analyses.

Based on favorable feedback from the participants, the PEC is tentatively planning to conduct a program in Spring 1997. Pharmacists interested in attending next year's program should contact the Pharmacy Specialty Advisor or Consultant for their service or agency.